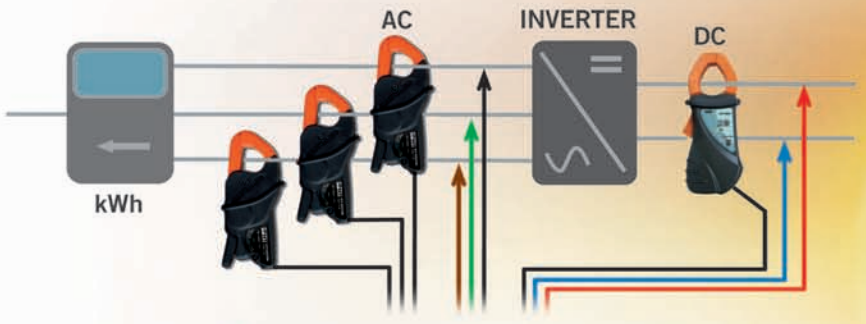
INSTRUMENTS FOR VERIFICATION, ANALYSIS AND TESTING OF PHOTOVOLTAIC SYSTEMS

SOLAR 200
SOLAR 300N
I-V 400
SOLAR I-V

SOLAR300N

3 PHASE PV SYSTEM ANALYZER



I-V400

I-V CURVE TRACER

Why to use a reference cell

Photovoltaic modules partially convert solar radiation into electric power. The efficiency of photovoltaic modules is strongly affected by several factors such as:
- operating temperature of modules;
- manufacturing technology of modules;
- angles at which solar radiation hits the modules' surface;
- spectral composition of solar radiation; etc.
It is obvious that, to properly evaluate the performance of the photovoltaic modules under test, it is necessary to measure the solar radiation which they are subject to by means of a transducer with features similar to the modules' ones. Using a sensor with a different manufacturing technology could lead to inconsistent measurements of solar radiation, and consequently to incorrect measurements of the modules under test.
For this reason HT photovoltaic testers are provided with the reference cell HT304 as standard accessory.
HT304 is featured as follows:
- it is provided with a built-in temperature sensor allowing compensation of the measured values;
- it is provided with two sensors made of monocrystalline and polycrystalline silicon respectively to better suit the manufacturing technology of the modules to be tested;
- it better reflects the close correlation of the modules under test with the solar radiation incidence angle as well as with its spectrum composition;
- it grants a quick response the same as the photovoltaic modules.
This last feature is crucial in case of measurements taken under conditions of variable cloudiness.

SAFETY WITH SOLAR 200

The photovoltaic installation is an electrical system under all respects and its safety must be certified in compliance with the regulations in force.
As the photovoltaic modules are installed outdoors and directly irradiated by the sun, they are subject to extreme environmental conditions such as hot weather in summer, frost in winter, rain and hail etc.
All this makes safety testing even more necessary.

Safety is not to be neglected in the assembly and maintenance of a photovoltaic installation.

The regulations in force state that quality marks and certification on components are not enough and that an instrumental measurement is required.

TESTING WITH SOLAR 300N AND SOLAR I-V

To apply for special tariffs the electricity user needs to provide a test certificate along with sundry documents. This document certifies that the installation ensures a minimum efficiency level. It is therefore necessary to employ measuring instruments bringing about significant practical problems.

In a typical building installation modules are usually placed on the roof and the inverter is often in the basement. Such a condition is critical because, to test the equipment both electrical and environmental parameters are to be measured simultaneously even though very far from each other.
Only the use of suitable equipment can grant correct measurements carried out in a suitable, fast and convenient way.

MAINTENANCE I-V400 AND SOLAR I-V

The outdoor installation, with consequent exposure to extreme environmental conditions, can lead to a rapid deterioration of the modules as well as a sharp decrease in the performance of the whole photovoltaic installation. The energy produced and the consequent economic benefit can be reduced considerably.

It should be advisable therefore to periodically check the installation comparing the performance of the modules as specified by their manufacturer. By measuring the module I-V feature and comparing it with the rating you can assess whether they are granting adequate performances, whether any decrease falls within the natural performance decay, or whether one or more modules are faulty. In this case you can pinpoint the damaged modules and promptly replace them.

Photovoltaic installations are becoming more and more popular

While the costs of components are decreasing and their performance is significantly booming up, the photovoltaic installations are very common either on buildings' roofs or installed on the ground.

The problems involved in the installation of photovoltaic systems, however, are to be solved in terms of safety, testing and maintenance requiring specific solutions.

INSTRUMENTS FOR TESTING AND VERIFYING PHOTOVOLTAIC INSTALLATIONS	SOLAR200	SOLAR300N	I-V 400	SOLAR I-V
Continuity of protective conductors with 200mA	•			
Insulation with test voltages of 50, 100, 250, 500, 1000V DC	•			
Tripping time and current of RCDs type A, ACt up to 500mA	•			
Impedance Line/Loop, also with high resolution (0.1mΩ), and Ipsc calculation	•			
Total earth resistance with no RCD tripping	•			
Phase sequence	•	•		
DC/AC TRMS voltage/current on single-phase systems		•		•
DC/AC TRMS voltage/current on three-phase systems		•		
DC/AC powers on single-phase systems		•		•
DC/AC powers on three-phase systems		•		
Power factor (cos ϕ) on single-/three-phase systems		•		
Energies on single-phase and three-phase systems		•		
Recording of mains parameters with programmable IP		• (1s-60m)		• (5s-60m)
Maximum number of quantities contemporarily selectable		251		9
Harmonic analysis of voltages/currents up to the 49th order		•		
Detection of voltage anomalies (dips, peaks) in 10ms		•		
Complete analysis according to EN50160		•		
Inrush current of electric motors		•		
Voltage fast transients (spikes) with a resolution of 5µs (200kHz)		•		
Voltage unbalance (NEG%, ZERO%) and Flicker (Pst, Plt)		•		
Display of vector diagrams and waveforms of voltages/currents		•		
Indication of recording autonomy		•		
Default and customizable recordings		•		
TFT touch-screen colour display		•		
LCD custom backlit display	•		•	•
Power supply by rechargeable battery and by means of external power supplier		•		
Use of remote unit		•	•	•
Efficiency measurement/recording of single-string systems		•		•
Efficiency measurement/recording of multi-string systems		• (optional accessory)		• (optional accessory)
Efficiency measurement/recording of single-phase systems		•	•	•
Efficiency measurement/recording of three-phase systems		•		• (optional accessory)
Irradiation measurement with reference solar cell		•	•	•
Temperature measurement of modules and environment		•	•	•
Detection of I-V curve of modules and strings			• (1000V, 10A)	• (1000V, 10A)
Internal database of PV modules			•	•
Measurement of modules and strings data (Voc, Vmpp, Impp, Isc, Pmax, FF, Dpmax)			•	•
Auto power off	•	•	•	•
Memory capacity	500 locations	1 month @ PI=15min, 251 par	> 200 curves	> 200 curves 5 days@ PI=15min
Extension of internal memory with external Compact Flash		•		
USB port for connection of external memory sticks		•		
PC interface with software for Windows	•	•	•	•
Context-sensitive help on the display	•	•	•	•
Saving of recordings and instant values		•	•	•
Dimensions (LxWxH) (mm)	235x165x75	235x165x75	235x165x75	235x165x75
Weight (batteries included) (Kg)	1,2	1	1,2	1,3
Safety in compliance with IEC/EN61010-1	•	•	•	•

SOLAR200

MULTIFUNCTION INSTRUMENT FOR SAFETY VERIFICATION OF SINGLE-PHASE AND THREE-PHASE PHOTOVOLTAIC SYSTEMS

SOLAR200 is an innovative instrument designed for carrying out electrical safety verifications on photovoltaic systems in compliance with the relevant safety requirements. The instrument is very easy to use and has a wide range of functions which can be selected by means of the simple multi-language menu. Measurements can be started both by pressing the button located on the instrument body and by pressing the button located on the remote probe (optional accessory PR400) which makes carrying out more measurements in sequence very simple. The help on line, which can be selected by the user and is active for any function, is a valid support for the connection of the instrument to the system to be tested. SOLAR200 is provided with an internal memory and an optical/USB interface for PC connection and for transferring measured data, which can be analyzed with the dedicated software.

FUNCTIONS

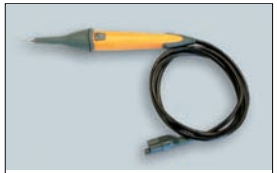
- Continuity of protective conductors with 200mA
- Insulation with test voltages of 50, 100, 250, 500, 1000VDC
- Tripping time of RCDs type A, AC, general and selective, with nominal current up to 500mA
- Tripping current of RCDs type A, AC, general and selective, with nominal current up to 500mA
- Impedance of Loop/Line P-N, P-P, P-PE, also with high resolution (0,1mΩ with optional accessory IMP57), and Ipsc calculation.
- Total earth resistance with no RCD tripping
- Contact voltage
- Phase sequence
- Activation of measurements with optional remote probe PR400
- Help on line on the display
- Saving of results
- Optical/USB interface for PC connection

GENERAL CHARACTERISTICS

Display:	LCD custom, backlit
Power supply:	6x1.5V alkaline bat. type AA IEC LR06
Internal memory:	500 locations
PC interface:	optoisolated optical connector
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT III 240V (to earth), CAT III 415V (between inputs)
Reference standards:	CEI 64-8 ; IEC/EN61557-1
Dimensions:	235x165x75mm
Weight (bat. included):	approx. 1.25kg

ACCESSORIES SUPPLIED	Code
Series accessories	
Cable with three-pin shuko plug	C2033X
Kit of 3 cables + 3 alligator clips + 1 probe	UNIVERSALKIT
Transport bag	BORSA75
User manual	
Calibration certificate ISO9000	
Optional accessories	
Windows software for PC + optical/USB cable	TOPVIEW2006
Remote probe for test activation	PR400
Accessory for measuring loop impedance with high resolution	IMP57
Kit of belts for slinging the instrument over one's shoulder	SP-0400

IMP57
Accessory for measuring loop impedance with high resolution



PR400
Remote probe

SOLAR300N

MULTIFUNCTION INSTRUMENT FOR TESTING SINGLE-PHASE AND THREE-PHASE PHOTOVOLTAIC SYSTEMS AND ANALYZING MAINS QUALITY IN COMPLIANCE WITH STANDARD EN50160

SOLAR300N allows carrying out all tests required for the verification of the efficiency of single-phase and three-phase photovoltaic systems.
Testing photovoltaic systems requires contemporarily measuring environmental parameters (incident irradiation of modules, temperature of environment and modules) and electric parameters (continuous power, alternating power, etc.). Typically, modules and inverter can be positioned even at several tens of meters of distance, thus forcing the operator to carry out measurements in different places far from each other at the same time. To carry out these operations, connections by means of long cables or (wireless) radio connections could be necessary, but both these solutions are not acceptable. Cables could hamper the operator's movements or be a hindrance, while radio waves would be attenuated by floors, reinforced concrete or metal structures, thus making communication impossible.
In order to avoid the above-mentioned problems and to carry out measurements with the necessary contemporaneity, SOLAR300N is provided with a remote unit, synchronized with the main unit. The remote unit is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters (irradiation and temperature). SOLAR300N is connected upstream and downstream of the inverter in order to acquire the electric parameters (continuous power and alternating power). The synchronization between the two units guarantees the necessary contemporaneity of measurements, the two separate and independent units make measurements comfortable and safe.
SOLAR300N is also a powerful instrument for the complete analysis of mains quality in compliance with standard EN50160 (harmonic analysis, analysis of voltage anomalies, Flicker, unbalance, etc.). The management software TopView also provides the possibility of creating professional reports, which can be customized by adding the company's logo, the customer's data, comments, etc.

FUNCTIONS

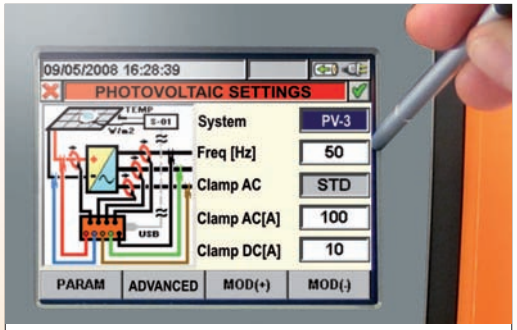
- DC/AC TRMS (single/three-phase) voltage measurement
- DC/AC TRMS (single/three-phase) current measurement
- DC/AC (single/three-phase) power measurement
- AC (single/three-phase) energy measurement
- Measurement of power factor (single/three-phase)
- Measurement of solar irradiation [W/m^2]
- Measurement of environmental and module temperature
- Evaluation of testing result: OK / NO
- Recording of voltage and current harmonics up to the 49th
- Recording of voltage anomalies (dips, peaks)
- Flicker analysis in compliance with standard EN50160
- Recording of starting currents with a resolution of 10ms
- Recording of fast voltage (spikes) with a resolution of 5µs
- Analysis of mains quality in compliance with EN50160
- Numerical and graphical display of each quantity
- Recalling results on the display
- TFT colour display with touch screen
- Power supply with rechargeable Li-ION battery
- Memory extension by means of CF card
- Data transfer to external USB memory (memory stick)
- USB port for PC connection
- Help on line on the display

GENERAL CHARACTERISTICS

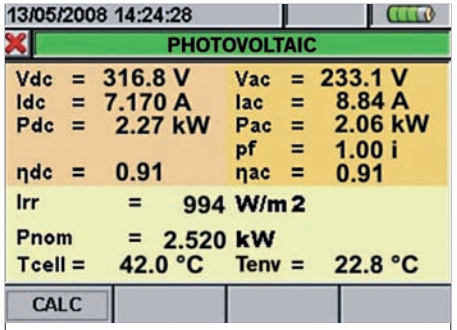
Display:	TFT, 65536 colours, (320x240pxl), high contrast, touch screen
Power supply:	1x3.7V rechargeable Li-ION battery with external power supply, duration > 6h, auto power off after 5 min in stand-by
Internal memory:	15Mbyte (duration approximately 3 months @ IP = 15min and 251 parameters selected)
Memory extension:	compact flash (CF card)
PC interface:	USB 2.0
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT IV 600V (to earth) CAT III 1000V (between inputs)
Unbalance:	IEC/EN61000-4-7
Qualità di rete:	IEC/EN50160
Flicker:	IEC/EN61000-4-15
Electric power quality:	IEC/EN61000-4-30 Classe B
Dimensions:	235x165x75mm
Weight (with battery):	approx. 1kg

ACCESSORIES SUPPLIED	Code
Series accessories	
Remote unit to record irradiation and temperature	SOLAR-02
Kit of 5 cables + alligator clips for voltage measurement	KIT800
Rigid clamp 5-100AC/1V, diameter 20mm, 3 pieces	HT4005N
Rigid clamp DC/AC 10-100A/1V, diameter 30mm	HT4004
Sensor for irradiation measurement	HT304
Probe PT1000 for panel temperature	PT300N
AC/DC power supply A0055	A0055
Rechargeable 3.7V Li-ION battery	
Touch-screen pen	PT400
Widows software + USB cable	TOPVIEW2007
Rigid transport suitcase	VA400
User manual on CD-ROM	
Rapid user guide	
Calibration certificate ISO9000	
Opzional accessories	
Rigid clamp AC 1-100-1000A/1V, diameter 54mm	HT96U
Rigid clamp AC 10-100-1000A/1V, diameter 54mm	HT97U
Rigid clamp DC/AC 1000A/1V, diameter 50mm	HT98U
Rigid clamp AC 200-2000A/1V, diameter 70mm	HP30C2
Rigid clamp AC3000A/1V, diameter 70mm	HP30C3
Flexible clamp AC 3000A, diameter 174mm (*)	HTFLEX33D
Flexible clamp AC 3000A, diameter 274mm (*)	HTFLEX35
Interface 3x1-5A/1V for connection of external CTs	HT903
Kit of belts for slinging the instrument over one's shoulder	SP-0400
Connector with magnetic tip	606-IECN

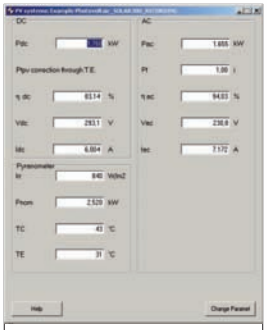
(*) only for using the instrument as mains analyzer



Graphical touch-screen display



Testing result on the display of SOLAR300N



Testing result on TopView software

Professional transport suitcase

I-V 400

MULTIFUNCTION INSTRUMENT FOR VERIFICATION OF I-V CHARACTERISTIC OF PHOTOVOLTAIC STRINGS AND MODULES

I-V 400 is the ideal solution for the ordinary and scheduled maintenance of photovoltaic systems. With I-V 400, searching for possible failures and problems in systems is extremely rapid, efficient and intuitive. I-V 400 carries out the field measurement of the I-V characteristic and of the main characteristic parameters both of a single module and of module strings. The instrument measures, together with the I-V characteristic of the device being tested, also the values of its temperature and incident irradiation. The acquired data are then processed to extrapolate the I-V characteristic at standard test conditions (STC) in order to proceed with the comparison with the nominal data declared by the modules' manufacturer, thus immediately determining whether or not the string or the module being tested respects the characteristics declared by the manufacturer.

In some PV installations, such as roof-top installations, it may be difficult to access the module output cables. An access to the cables at the combiner box or at the inverter's inputs may be the only chance. In this case the measurement of I-V characteristics can be achieved by measuring the environmental parameters (irradiation and temperature) through the remote optional unit SOLAR-02. The remote unit is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters. The synchronization between the two units guarantees the necessary contemporaneity of measurements making possible the extrapolation of the I-V curve at STC without using long extension cords cable.

Output current or voltage from the module or string is measured with the 4-terminal method, which allows extending the measurement cables without requiring any compensation for their resistance, thus always providing accurate and precise measurements. In its internal memory, I-V 400 manages a database of photovoltaic modules, which can be updated at any time both via the management software and directly on the instrument. Together with the measurement of the I-V characteristic and the extrapolation of the characteristic at standard test conditions, I-V 400 compares the obtained values with the values declared by the manufacturer, immediately providing the OK / NO result of the test. The operator must not do any calculation, nor any difficult operation. The instrument carries out the comparison rapidly and automatically.

FUNCTIONS

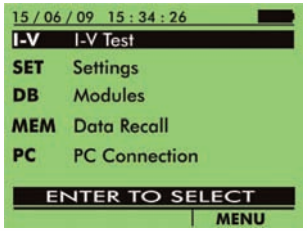
- Meas. of output voltage from module/string up to 1000V DC
- Meas. of output current from module/string up to 10A DC
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of module temperature, automatic or by means of external probe
- Meas. of output DC and nominal power of module/string
- Synchronization with remote unit SOLAR-02
- Numerical and graphical display of I-V characteristic
- Measurement of the resistance of photovoltaic module series
- Mechanical inclinometer for the detection of the incidence angle of solar irradiation
- 4-terminal measuring method
- Extrapolation to standard test conditions (STC)
- Evaluation of testing result: OK / NO
- Management of up to 30 types of photovoltaic modules in the internal database
- Internal memory for data saving
- Recalling results on the display
- Optical/USB port for PC connection
- Help on line on the display

GENERAL CHARACTERISTICS

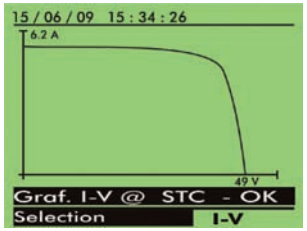
Display:	LCD Custom, 128x128pxl, backlit
Power supply:	6x1.5V alkaline batteries type AA LR06
Auto power off:	after 5 minutes in stand-by
Internal memory:	256kBytes
Curves which can be saved:	> 200
PC interface:	optoisolated optical/USB port
Safety:	IEC/EN61010-1
Measuring accessory safety:	IEC/EN61010-031, IEC/EN10-032
Measures:	IEC/EN 60891
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT II 1000V, CAT III 300V (to earth) Max 1000V between inputs
Dimensions:	235x165x75mm
Weight (batteries included):	1.2kg

I-V 400

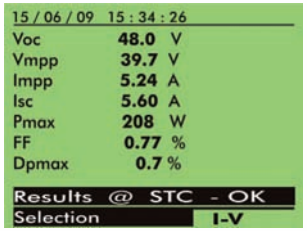
ACCESSORIES SUPPLIED	Code
Series accessories	
Kit of 4 cables with 4mm banana plugs + 4 alligator clips	KITGSC4
Kit of 2 adapters with MC3 compatible connectors	KITPVMC3
Kit of 2 adapters with MC4 compatible connectors	KITPVMC4
Reference cell for irradiation measurement	HT304
Mechanical inclinometer	M304
Windows software + optical/USB cable C2006	TOPVIEW2006
Transport bag	BORSA2051
User manual	
Calibration certificate ISO9000	
Opzional accessories	
Probe PT1000 for cell temperature measurement	PT300N
Kit of belts for slinging the instrument over one's shoulder	SP-0400
Remote unit to record irradiation and temperature	SOLAR-02
KIt of 2 cables banana 4mm, Green/Black, 25m	KITPVEXT25M
Rigid transport suitcase	VA400



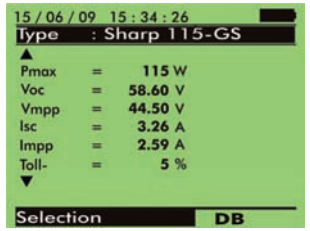
Simple and intuitive user interface



Graphical display of an I-V curve with OK result



Numerical display of results with OK result

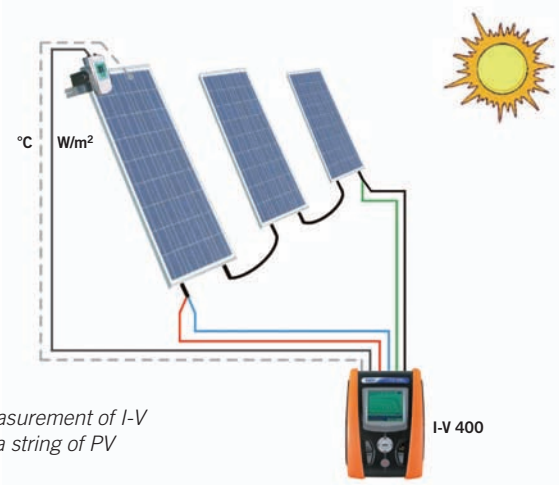


Creation of a cutomizable database of photovoltaic modules

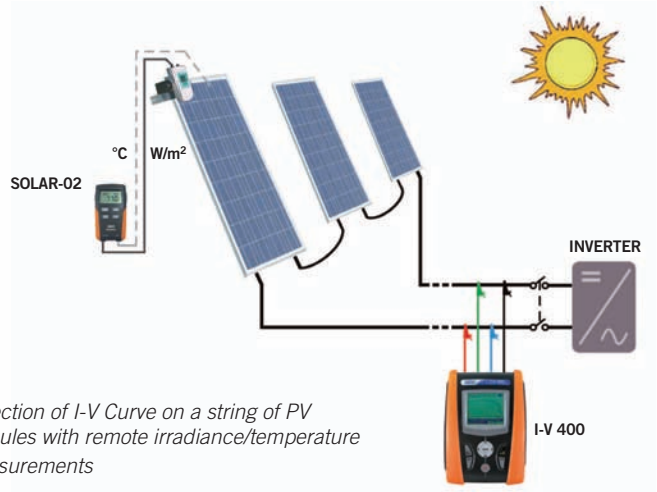
Remote unit SOLAR-02 for recording irradiation and temperature connected to RF

Reference cell HT304 for solar irradiation measurement

Mechanical inclinometer M304 for the detection of the incidence angle of solar irradiation



Direct measurement of I-V Curve on a string of PV modules



Detection of I-V Curve on a string of PV modules with remote irradiance/temperature measurements

SOLAR I-V

MULTIFUNCTION INSTRUMENT FOR TESTING AND VERYFYING SINGLE-PHASE PHOTOVOLTAIC INSTALLATIONS

SOLAR I-V has been designed to meet any requirement of photovoltaic installation specialists. Further to providing the possibility of measuring and recording the efficiency of single-string and single-phase photovoltaic systems, SOLAR I-V also measures the I-V characteristic both of a single module and of module strings.
Thanks to SOLAR I-V, the operator can test the photovoltaic system and, should it give a negative result, immediately identify the problems of the system in order to promptly solve them. SOLAR I-V is provided with the remote unit SOLAR-02 which permits the remote measuring of irradiation and temperature with preliminary automatic synchronization between main unit and remote unit. SOLAR-02 is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters. The synchronization between the two units guarantees the necessary contemporaneity of measurements. In the case of PV efficiency recordings, this grants the right efficiency calculation. For I-V curve measurements, the synchronization permits to extrapolate the I-V curve at STC without using long extension cords cable. SOLAR I-V allows carrying out efficiency recordings over time with programmable integration period from 5 seconds to 60 minutes. Each value is automatically saved in the internal memory and can be downloaded onto the PC for subsequent analyses.
The measured I-V characteristic is not affected by the resistance of the measurement cables, as the measurement is carried out with the 4-terminal measuring method. SOLAR I-V also manages a database of photovoltaic modules, which can be updated at any time. The measured values, correctly reported at standard test conditions, are immediately compared with the values declared by the manufacturer to give the OK / NO result of the test. The operator must not do any calculation, the instrument carries out the comparison rapidly and automatically.

FUNCTIONS

Photovoltaic installation testing

- Measurement of DC/AC TRMS voltage and current
- Measurement of DC/AC powers on single-phase systems
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of environmental and module temperature by means of external probe
- Synchronization with remote unit SOLAR-02
- Display of real-time irradiation and temperature
- Use of PDC compensation ratios according to environmental and module temperature
- Recording of parameters with programmable IP (5s – 60min)

I-V characteristic measurement

- Meas. of output voltage from module/string up to 1000V DC
- Meas. of output current from module/string up to 10A DC
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of module temperature, automatic or by means of external probe
- Meas. of output DC and nominal power from module/string
- Synchronization with remote unit SOLAR-02
- Numerical and graphical display of I-V characteristic
- Measurement of the resistance of photovoltaic module series
- Mechanical inclinometer for the detection of the incidence angle of solar irradiation
- 4-terminal measuring method
- Extrapolation to standard test conditions (STC)
- Evaluation of testing result: OK / NO
- Management of up to 30 types of photovoltaic modules in the internal database

Common characteristics

- Internal memory for data saving
- Recalling results on the display
- Optical/USB port for PC connection
- Help on line on the display

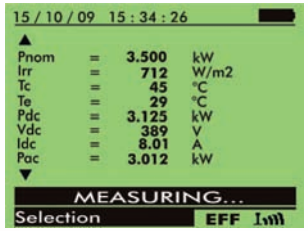
GENERAL CHARACTERISTICS

Display:	LCD custom, 128x128pxl, backlit
Power supply:	6x1.5V alkaline bat. type AA LR06
Auto power off:	after 5 minutes in stand-by
PV testing duration:	1.5 hours (@IP=5s); 5 days (@IP=15min)
Curves which can be saved:	> 200 curves
PC interface:	optoisolated optical/USB port
Safety:	IEC/EN61010-1
Measuring accessory safety:	IEC/EN61010-031, IEC/EN61010-032
Testing systems PV:	D.M 19/02/07 – Guida CEI 82-25
Measures:	IEC/EN60891
Insulation	double insulation
Pollution degree:	2
Measurement category:	CAT II 1000V DC, CAT III 300V (to earth) Max 1000V between inputs
Dimensions:	235x165x75mm
Weight (batteries included):	1.3kg

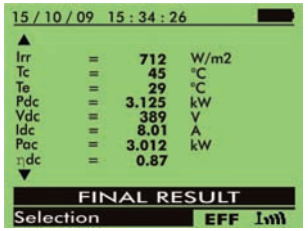
SOLAR I-V

ACCESSORIES SUPPLIED	Code
Series accessories	
Remote unit to record irradiation and temperature	SOLAR-02
Kit of 4 cables with 4mm banana plugs + 4 alligator clips	KITGSC4
Kit of 2 adapters with MC3 compatible connectors	KITPVMC3
Kit of 2 adapters with MC4 compatible connectors	KITPVMC4
Rigid clamp 5-100A/1V AC, diameter 20mm	HT4005N
Rigid clamp DC/AC 10-100A/1V, diameter 30mm	HT4004
Reference cell for irradiation measurement	HT304
Probe PT1000 for environmental and module temperature	PT300N
Mechanical inclinometer	M304
Windows software + optical/USB cable C2006	TOPVIEW2006
Transport bag	BORSA2051
User manual	
Calibration certificate ISO9000	
Rapid user guide	
Opzional accessories	
Rigid clamp AC 1-100-1000A/1V, diameter 54mm	HT96U
Rigid clamp AC 10-100-1000A/1V, diameter 54mm	HT97U
Rigid clamp DC/AC 1000A/1V, diameter 50mm	HT98U
Kit of belts for slinging the instrument over one's shoulder	SP-0400
KIt of 2 cables banana 4mm, Green/Black, 25m	KITPVEXT25M
Rigid transport suitcase	VA400
Connector with magnetic tip	606-IECN

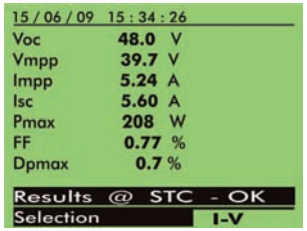
Remote unit SOLAR-02 for recording irradiation and temperature connected to RF



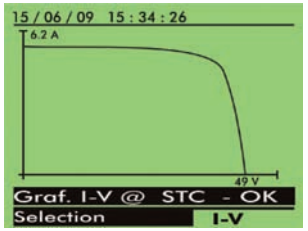
Testing / Recording in progress



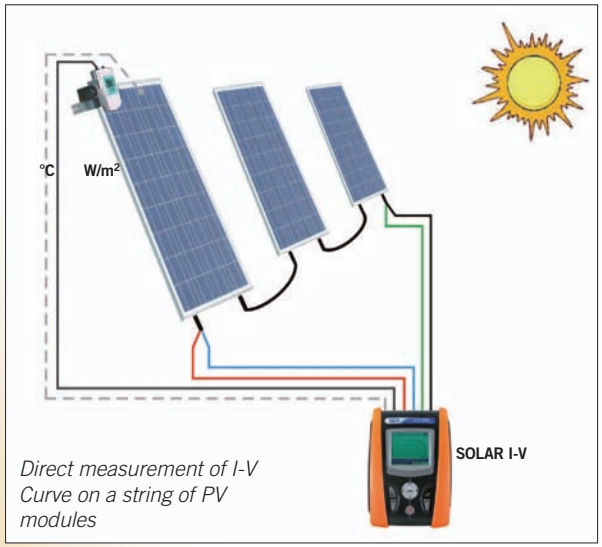
Testing result of photovoltaic system



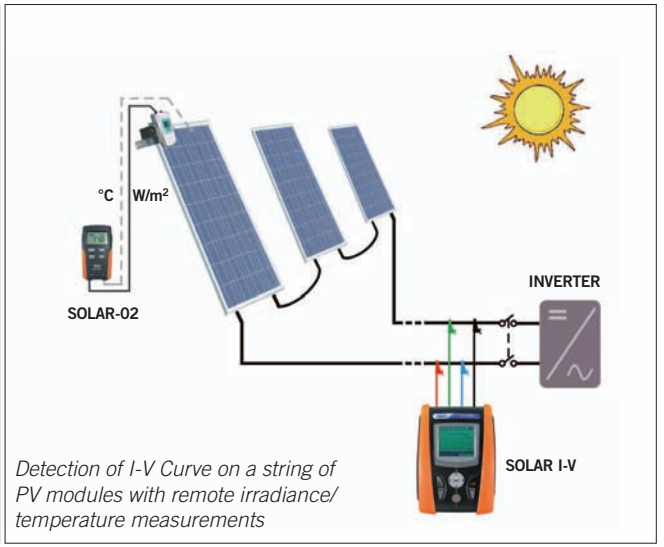
Numerical display of results with OK result



Graphical display of an I-V curve with OK result



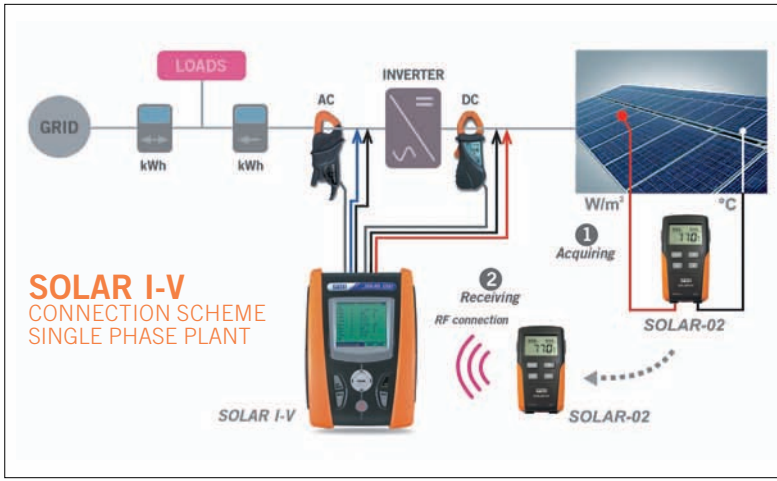
Direct measurement of I-V Curve on a string of PV modules



Detection of I-V Curve on a string of PV modules with remote irradiance/ temperature measurements

Remote unit SOLAR-02 for recording irradiation and temperature

Mechanical inclinometer M304 for the detection of the incidence angle of solar irradiation



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EURO-INDEX
Service

Onderhoud en kalibratie van meetinstrumenten

De Nederlandse vestiging van EURO-INDEX beschikt over een bijzonder modern service- en kalibratie-laboratorium. Hier worden de meetinstrumenten uit het assortiment preventief onderhouden, gerepareerd, gekalibreerd en indien nodig gejusteerd. Het service- en kalibratielaboratorium van EURO-INDEX is verdeeld in verschillende disciplines, gebaseerd op het soort meetinstrument en de gemeten grootheden.

- Druk
- Gasanalyse
- Temperatuur (inclusief infrarood temperatuurmeting en thermografie)
- Elektrische grootheden
- Gasdetectie
- Luchtsnelheid en luchthoeveelheid

Waarom een kalibratiecertificaat?

Een kalibratiecertificaat vermeldt hoeveel een meetinstrument afwijkt ten opzichte van onze, naar (inter)nationale standaarden herleidbare, kalibratiemiddelen. Bij de meetresultaten op het certificaat wordt tevens vermeld of het meetinstrument voldoet aan de specificaties die door de fabrikant zijn opgegeven.

Zonder kalibratiecertificaat kunt u er vanuit gaan dat de meter voldoet aan de fabrieksspecificaties, maar aantonen kunt u dit niet. Een testcertificaat van de fabrikant is te beknopt om de lineairiteit aan te tonen en is niet geregistreerd op naam (wat wel degelijk een vereiste is).

KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie. Veel zaken worden voor u geregeld, zodat u zonder zorgen gebruik kunt maken van uw meetinstrumenten.

- De prijs staat vast voor de levensduur van het instrument (mits de KWS® behandeling volgens herkalibratieadvies periodiek wordt uitgevoerd in het EURO-INDEX kalibratielaboratorium)
- Geen arbeidsloon bij de KWS® behandeling
- Kalibratie voor justage (voorkalibratie) indien mogelijk
- Indien nodig justage en (na)kalibratie
- Reparatie en preventief onderhoud
- Gratis oproep met het advies voor herkalibratie
- Controle op functionaliteit van het instrument
- Vijf jaar historie voor alle gegevens
- 10% korting op onderdelen
- Serienummerregistratie
- Franco retourlevering

RvA accreditatie

Het kalibratielaboratorium van EURO-INDEX beschikt sinds 21 augustus 1997 over een RvA accreditatie naar NEN-EN-ISO/IEC 17025. Deze accreditatie geldt voor verschillende grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105 op www.rva.nl. Test- en meetinstrumenten voor grootheden die deel uitmaken van de gespecificeerde scope, kunnen worden voorzien van een RvA kalibratiecertificaat. De metingen worden uitgevoerd met standaarden waarvan de herleidbaarheid naar (inter)nationale standaarden, ten overstaan van de Raad voor Accreditatie, is aangetoond.

In het Multilateral Agreement zijn de meeste Europese landen overeengekomen elkaars accreditaties te accepteren. Hierdoor is een RvA kalibratiecertificaat internationaal geaccepteerd. Bovendien wordt op een RvA kalibratiecertificaat de meetonzekerheid van de gerapporteerde meetresultaten vermeld.

Verhuur van meetinstrumenten

EURO-INDEX biedt een assortiment meetinstrumenten te huur aan. Na deskundig advies van onze productspecialisten, wordt bepaald welk instrument u nodig heeft voor uw specifieke werkzaamheden. De instrumenten worden compleet met accessoires geleverd, inclusief herleidbaar kalibratiecertificaat.

Wijzigingen voorbehouden EURO-INDEX® VL 13001

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